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Age, sex and body condition of Baltic grey seals: Are problem seals a random sample of the population?

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The increasing Baltic grey seal (*Halichoerus grypus*) population causes considerable damage to coastal fisheries. The aim of the present study was to compare the age, sex and blubber thickness of seals that cause problems to coastal fisheries (i.e. by-catch seals and those shot near the fishing gear) with those killed during regular hunting. This knowledge is essential for population management. We collected seal samples from hunters and fishermen from Finland, Sweden and Estonia in 2011–2013. Hunted seals included individuals of all age classes, whereas most by-catch seals were small pups (in spring) or sub-adult and adult males (in autumn). By-catch seals had a thinner blubber layer than hunted seals. Most seals shot near the fishing gear were adult males in good condition. The 'problem seals' were thus not a random sample of the population. We suggest that hunting should be targeted especially at males to mitigate the damage to fisheries without threatening the population.

Introduction

The Baltic grey seal (*Halichoerus grypus*) population has increased since 1990 at an annual rate of 5.8%–8.5% (Harding *et al.* 2007, Ahola & Kauhala 2015), and the number of counted grey seals during aerial surveys exceeded 32 000 in 2014 (Ahola & Kauhala 2015). The increasing Baltic grey seal population has caused problems to coastal fisheries during recent decades. Seals destroy fishing gear and rob fish from gill and trap nets. The damage caused by seals to fisheries may be considerable, including both visible catch losses such as partly eaten fish and hidden losses when fish are scared away or removed entirely without leaving any visible fish remains in the net (Jounela *et al.* 2006, Königson *et al.* 2007, Bruckmeier & Larsen 2008). Hidden losses can account for about one third of the potential total catch as estimated for the inshore gillnet fishery in the central Baltic Sea (Königson *et al.* 2007).